

Squatting (squatter) mantis man: A prehistoric praying mantis petroglyph in Iran

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Abstract

A 14-cm motif of a six-legged creature with raptorial forearms was discovered in the Teymarest rock art site in central Iran (Markazi Province) during a 2017 and 2018 survey of petroglyphs or prehistoric stone engravings. In order to identify it, entomologists and archaeologists compared the motif to local insects and to similar motifs and geometric rock art from around the world. The inspected motif resembles a well-known "squatter man" motif based on aurora phenomena and found all over the world, combined with a praying mantid (Mantodea), probably a local species of *Empusa*. The petroglyph proves that praying mantids have been astounding and inspiring humans since prehistoric times.

Keywords

archaeology, cultural entomology, Mantodea, paleoart, rock art

Introduction

Rock art is visible in much of the world and is an integral part of the history of humankind, serving as a form of nonverbal and visual communication (Fossati et al. 1990). Petroglyphs (engraved rock art, from the Greek *petra* meaning "stone", and *glypho* meaning "carve") have been used since prehistory to express feelings and opinions. Petroglyphs often appear in similar contexts, such as on the walls of caves and rocky shelters or on freestanding outdoor rocks (Bradley et al. 1994). The engraved images are diverse and depict everything from simple geometric shapes (lines, circles, triangles, or squares) to more or less recognizable representations of creatures or elements from the local environment, such as humans, animals, plants, or tools (van der Sluijs and Peratt 2010). Scholars studying the cultures of the past examine stone art as an important source of data and try to describe them by visual comparison (Burno and Lourandos 1998, Deufemia and Paolino 2014). Understanding the meaning of petroglyphs carved into stone thousands of years ago is highly challenging. The task is

similar to a game of Pictionary, albeit without the artist on hand to say whose guess is correct (van der Sluijs and Peratt 2010).

Zoomorphic petroglyphs comprise a considerable amount of rock art and attract zoologists' attention throughout the world. Ira et al. (1994) divided zoomorphic petroglyphs into four categories: 1) animals hunted for food, 2) domesticated animals (for food, work, or pets), 3) animals with ritualistic symbolism (shamanism, sorcery), and, finally, 4) purely artistic motifs (animals depicted only for artistic purposes). As hunter-gatherers, early humans depicted mostly the large-sized animals (mostly mammals) that they preyed upon or that were threatening their lives. The numerous ancient rock arts with invertebrate motifs are less easily explained. Several prehistoric images from around the world have been identified as invertebrates, such as a cave cricket motif carved into a bison bone in the Magdalenian epoch (Chopard 1928), and more are continuously being discovered (Loring and Loring 1996, Amador Bech 2015).

In Iran, zoomorphic petroglyphs are found in mountainous regions that were inhabited by nomadic tribes (Kazemi et al. 2016). As invertebrate motifs in the country have been rather understudied, with many of them unidentified or interpreted as geometrics (Naserifard 2009, 2017), a team of local entomologists and archaeologists conducted a survey in 2017 and 2018 to identify several arthropod-like petroglyphs found in Iran in 2017. Consequently, some amazing motifs were discovered and/or their likely identity determined, and one such motif is presented here. The aim of this article is to present a new type of invertebrate-morph petroglyph from Iran, and to put it in context.

Materials and methods

An engraved, arthropod-like image with a length of 14 cm and a width of 11 cm (Fig. 1A) was found on a 30-degree sloped boulder in the vicinity of Sarkubeh Village in the Teymarest Region of Markazi Province in the Islamic Republic of Iran (Fig. 2).

The petroglyph was made using hammering and engraving techniques. International sanctions preclude the use of radiocarbon dating methods to precisely date the petroglyphs, but a chronological survey estimated the petroglyphs in the region were created in the range of 40,000–4,000 years ago (Samuels 2016).

To identify the depicted organism, taxonomic methods were used. In particular, we analyzed morphological characters and compared the petroglyph to arthropods known to be distributed in this area and their behavioral characteristics. The motif was also compared with ancient anthropomorphs and anthropomorphized animal images in Iran and other countries to find possible similarities. The comparisons were independent of scale and rotation.

Results

The inspected petroglyph represents a six-legged creature with grasping forelegs, and so was identified as a praying mantid (Mantodea). Characteristics of the petroglyph are a large triangular head equipped with a vertical extension, large eyes, opened forelegs, intermediately looped mid-legs, and curved hind-legs (Fig. 1A, B). The motif seems to have raised and opened its forelegs laterally, so it may depict a menacing mantid. This posture is typically seen in various mantid species during intra- and/or inter-specific encounters (Bonfils 1967, Edmunds 1975, Yamawaki 2011, Kolnegari 2020) (Fig. 3A, B). Although the position of the forelegs brings to mind the frightening pose (i.e., deimatic reaction) of a mantid, this type of depiction might be due to the constraints of two-dimensional rock art. The upper, linear part of the motif symbolizes the head extension, which is comparable with some mantid species. Among Iran's mantodeans, *Empusa* spp. have similar head shapes as the motif with an expanded vertex typical of the Empusini, although one can perceive variations in form and size of the extension in

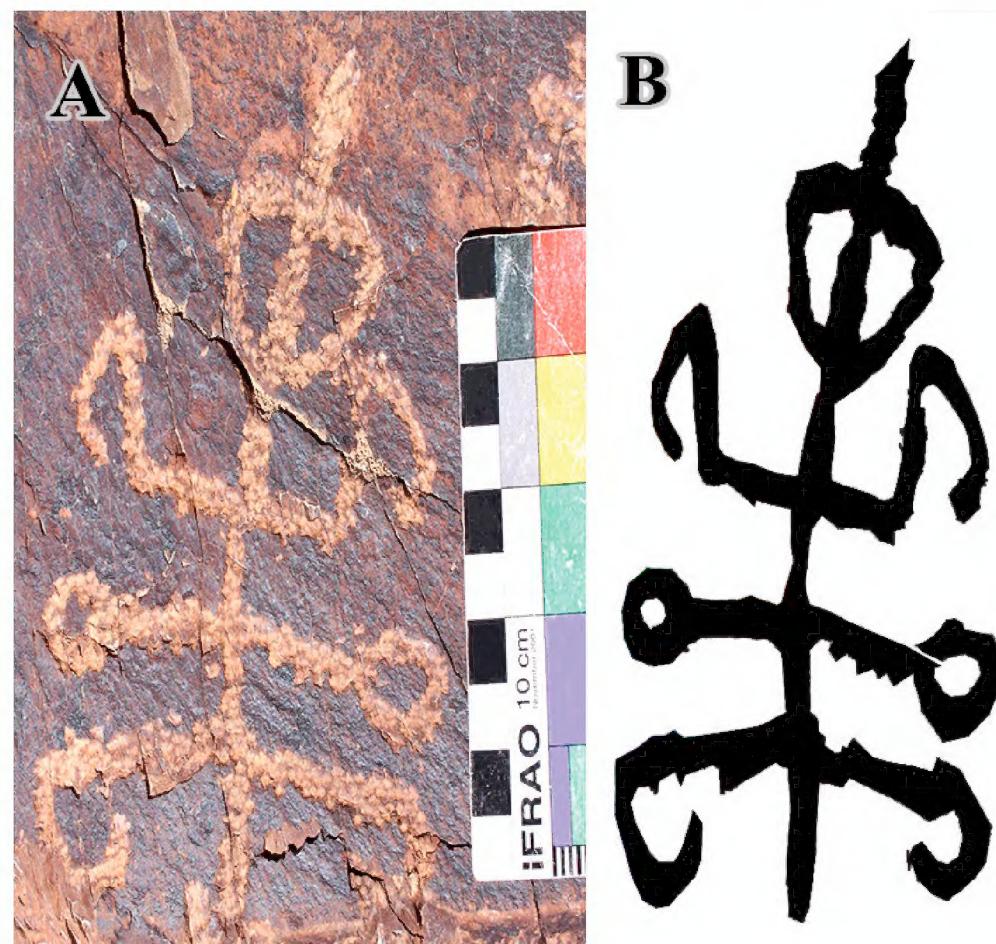


Fig. 1. "Squatting mantis man" petroglyph. A. The inspected petroglyph, located in Teymarest Region, Khomein County, Markazi Province, Iran. IFRAO (International Federation of Rock Art Organizations) Standard Scale: 10 cm from end to end. Photo credit: M. Naserifard. B. Black and white drawing of the motif (illustration by M. Kolnegari).

different species of the genus (Battiston et al. 2010) (Fig. 3C, D). *Empusa* spp. live in warm and dry environments like the Teymarest Region of Iran, thus the same biota could have been present in the area at the time the petroglyphs were carved. Theoretically, the large "head" could instead depict the large pronotum of some mantid species, such as *Idolomantis* or other species that lived in this region in prehistory but are not present today. The unrelated insects, called mantid lacewings (Neuroptera: Mantispidae), also have grasping forelegs, but they are quite a bit smaller than mantids and have no head expansion, so are unlikely to have inspired this motif.

The specific shape of the mid-legs and hind legs are the deceptive parts of the motif that could mislead the identification process. In fact, the entire appearance of the motif is comparable with particular anthropomorphs that show a man-like figure having two dots on either side of the midsection: e.g., fig. 14 in Peratt (2003). The symbol is named "squatter man" ("squatting man"), and some archaeologists believe that the motif is associated with aurora phenomenon due to plasma discharge, specifically a "Z-pinch instability" (Scott and Peratt 2003, Peratt 2004). This anthropomorph has been discovered in several regions including northern Arizona, Tucson, Arizona, New Mexico, Armenia, Spain, Tyrolian Alps, Italy, United Arab Emirates, Guyana, and Venezuela (Peratt 2003). Alternatively, in some ancient depictions, it represents a human shape holding a circular object in the hand (Lahafian 2013). The Iranian motif seems to be a combination of "praying mantis" and "squatting (squatter) man," so it is hereby named "squatting (squatter) mantis man."

Discussion

While it is difficult to interpret prehistoric petroglyphs, morphological similarity and distinct features suggest the inspected petroglyph likely symbolizes a praying mantid. Mantid-like motifs have been found in several regions around the world—some were even considered as alien symbols (Davidson 2015)—but humanity's interest in the praying mantis can be dated to prehistoric times. Praying mantids had great value to the Mesopotamian people who established the first civilization (Panayotov et al. 2018). In the Egyptian Book of the Dead (written on papyrus, 1555–1350 B.C.), praying mantids appear as the abyt-bird (bird-fly or bird-dancer), a smaller divinity of the underworld and a guide that accompanies the dead along their path in the Royal Palace of the great divine spirits (Prete et al. 1999). Praying mantids also had a hieroglyphic symbol, named "qdtm" (Evans 2004).

The main question is why prehistoric man was fascinated by mantids as far back as at least 4,000 years ago, and, consequently, why did they start scratching their images into solid rocks? Might it be related to Lewis-Williams and Dowson's (1988) controversial hypothesis that connects ancient rock art to using hallucinogenic plants? Exaggeration and mysticism are seen in much prehistoric rock art within and outside of Iran (Loring and Loring 1996, Sanders 2014, Sabzi and Hemati Azandaryani 2017). Mantids may also have been depicted for their hunting ability, perhaps as inspiration to prehistoric human hunters. The praying mantids have always fascinated, scared, and astonished mankind with their camouflage and mimicry ability, their skills in hunting and capturing prey, and for their bizarre sexual behaviors (Battiston et al. 2010).

Unlike large mammals with practical connections to humans, such as those hunted or domesticated, arthropods are more rarely depicted in ancient petroglyphs. The useless but astonishing praying mantids could have merited petroglyphs of their forms by be-

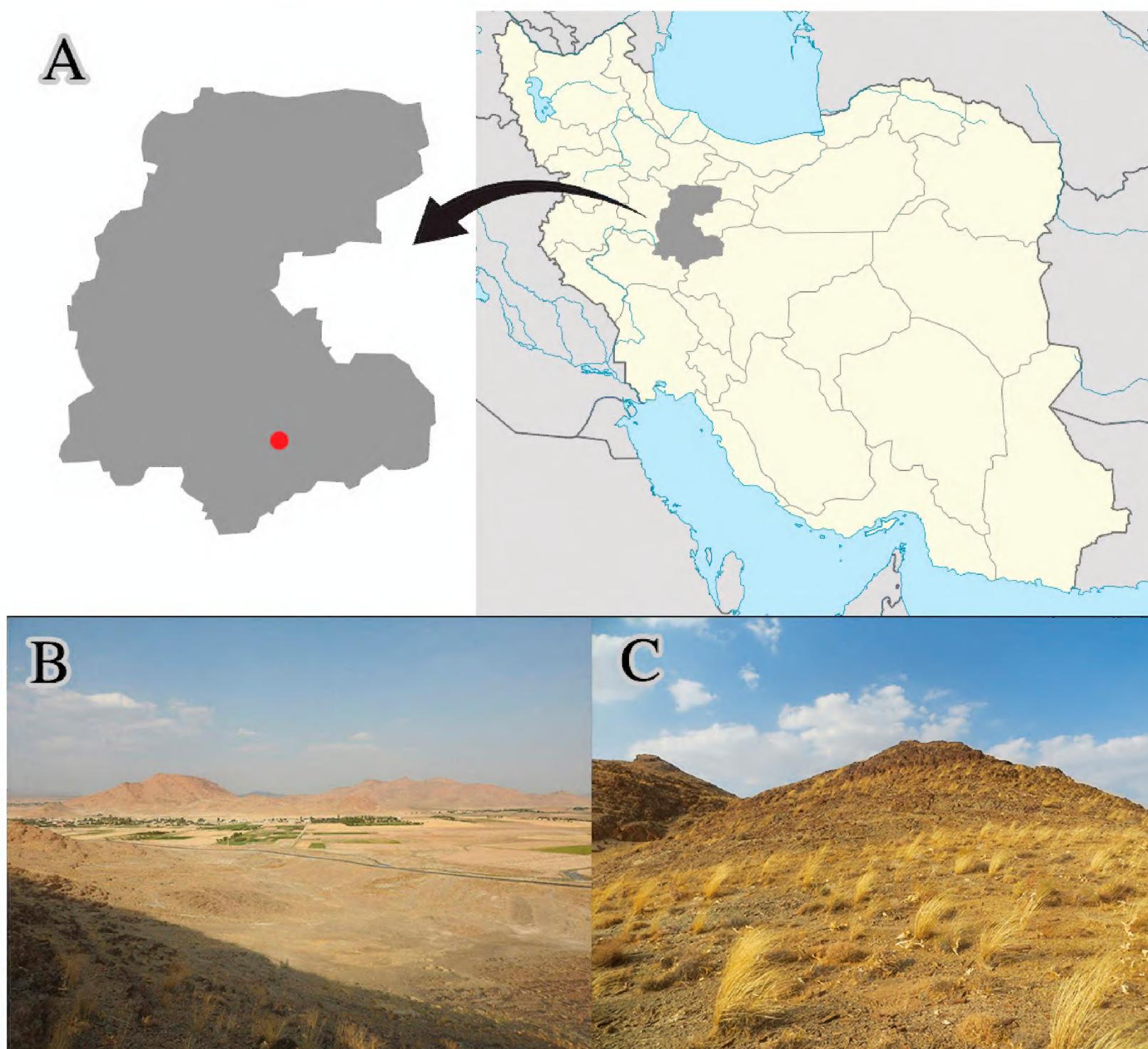


Fig. 2. Locality of the “squatting mantis man” petroglyph. **A.** Map of Iran with Markazi Province highlighted and the location of the Teymareh petroglyph site labeled on the insert in red (illustration by M. Kolnegari). **B.** Sarkubeh Village as seen from the petroglyph site. **C.** The Teymareh petroglyph locality. Photo credit: M. Kolnegari.

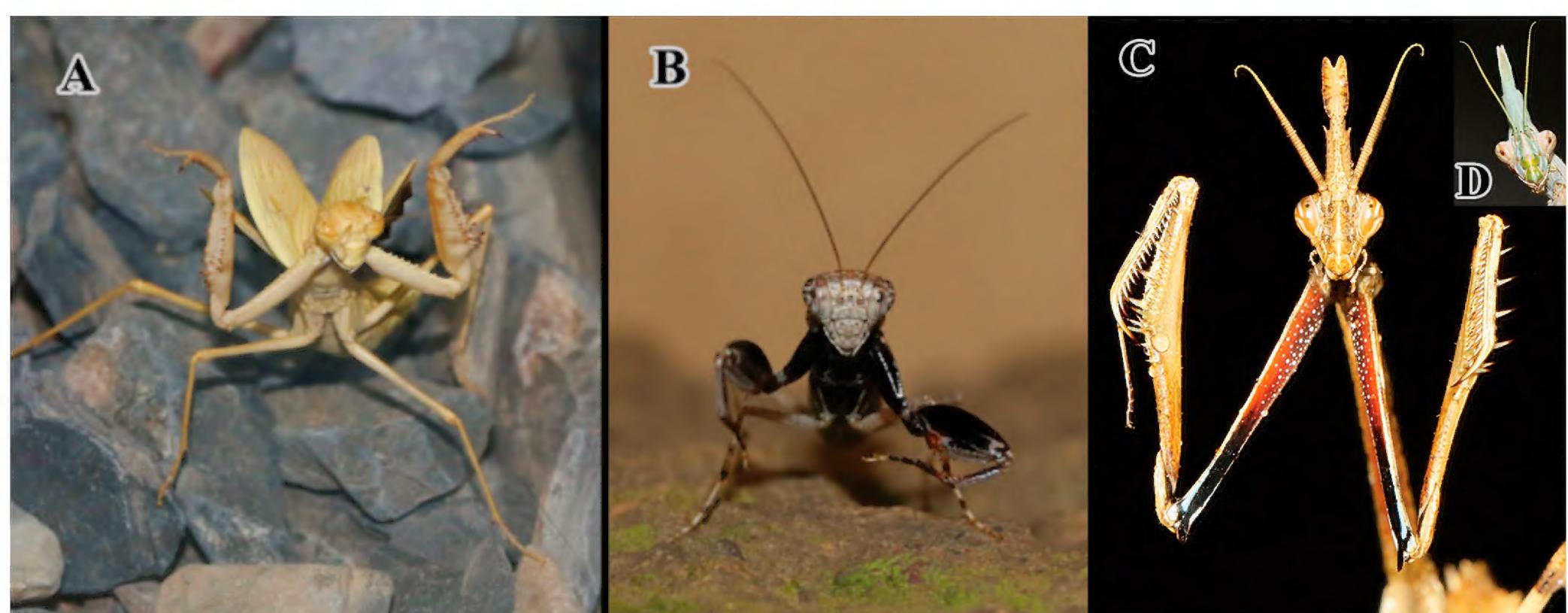


Fig. 3. Praying mantids with records in Iran. **A.** Adult *Bolivaria brachyptera* Pallas, 1773, with raised and opened forelimbs in a deimatic display. **B.** Adult *Holaptilon brevipugilis* Kolnegari, 2018. **C.** *Empusa hedenborgii* Stål, 1877, with opened forelimbs. **D.** Conehead mantis *Empusa pennicornis* (Pallas, 1773). Photo credit: M. Kolnegari.

ing part of ancient religions, fears, or admirations. The praying mantis has since ancient times been a symbol for the supernatural, or that which stands between "the world of men and gods" (Battiston et al. 2010). An example includes several prehistoric pictographs in southern Africa representing "mantis people" with half-mantid bodies (Davidson 2015). These, and the Iranian mantid petroglyph, bear witness that in prehistory, almost as today, praying mantids were animals of mysticism and appreciation.

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References

Amador Bech J (2015) Animal mythic symbolism in the rock art of the Sonoran desert. *Diseño de Metodologías y Técnicas de Registro, de Diagnóstico de Conservación y de Estrategias de Preservación y Protección del Patrimonio Rupestre de México*.

Battiston R, Picciau L, Fontana P, Marshal J (2010) Mantids of the Euro-Mediterranean area. World Biodiversity Association (WBA-Handbooks 2), Verona, Italy, 240 pp.

Bonfils J (1967) Contribution à l'étude des orthoptéroides des Antilles 111. Une espece nouvell d'genre *Oligonyx* Saussure: description et notes biologiques (dig.). *Bulletin de la Société Entomologique de France* 72: 243–248.

Bradley R, Boado FC, Valcarce RF (1994) Rock art research as landscape archaeology: a pilot study in Galicia, NW Spain. *World Archaeology* 25: 374–390. <https://doi.org/10.1080/00438243.1994.9980252>

Burno D, Lourandos H (1998) Rock art and socio demography in north-eastern Australian prehistory. *World Archaeology* 30: 193–219. <https://doi.org/10.1080/00438243.1998.9980407>

Chopard L (1928) Sur une gravure d'insecte de l'époque magdalénienne. *Comptes Rendus de la Société de Biogéographie* 1928: 64–67.

Davidson J (2015) The mysterious mantis people. <https://www.linkedin.com/pulse/mysterious-mantis-people-james-g-davidson/> [Accessed on 14.08.2019]

Deufemia D, Paolino L (2014) Segmentation and recognition of petroglyphs using generic Fourier descriptors. In: Elmoataz A, Lezoray O, Nouboud F, Mammass D (Eds) *Image and Signal Processing. ICISP 2014. Lecture Notes in Computer Science 8509*. Springer, Cham. https://doi.org/10.1007/978-3-319-07998-1_56

Edmunds M (1975) Courtship, mating, and possible sex pheromones in three species of Mantodea. *Entomologist's Monthly Magazine* 111: 53–57.

Evans L (2004) The praying mantis in Egypt. *The Bulletin of the Australian Centre for Egyptology* 15: 7–18.

Fossati A, Jaffe L, De Abreu MS (1990) Rupestrian archaeology. Techniques and terminology. A methodological approach: Petroglyphs. In: Jaffe L, Ronayne D (Eds) *Ricerche Archaeologiche, Vol. 1. Cooperativa archeologica Le orme dell'uomo*, Italy, 51–58.

Ira G, Gonsalves J, Mundy P (1994) Animal diversity in prehistoric rock art. In: *Biodiversity in the Western Ghats, Information Kit*. World Wide Fund for Nature, India. Chapter 8–5, 1–4.

Kazemi M, Naseri Soomeh H, Tahmasebi F (2016) Study of dash complex, petroglyphs in Meshginshahr, northwest of Iran. *International Journal of Science and Research Methodology: Human* 5: 317–328.

Kolnegari M (2020) Mating behavior of the Persian boxer mantid *Holaptilon brevipugilis* (Mantodea: Mantidae). *Journal of Orthoptera Research* 29: 35–39. <https://doi.org/10.3897/jor.29.37595>

Lahafian J (2013) Rock art in Kurdistan Iran. *Arts* 2: 328–349. <https://doi.org/10.3390/arts2040328>

Lewis-Williams D, Dowson T (1988) The signs of all times: Entopic phenomena in Upper Palaeolithic Art. *Current Anthropology* 29: 201–245. <https://doi.org/10.1086/203629>

Loring JM, Loring L (1996) *Pictographs and petroglyphs of the Oregon county, parts I and II*. University of California Press, USA, 293 pp.

Naserifard M (2009) *Iran petroglyphs ideogram symbol*. Khomein Press. 444 pp.

Naserifard M (2017) *Iran petroglyphs universal common language*. Vasef Publisher, 530 pp.

Panayotov SV, Vacín L, Trabich G (2018) *Mesopotamian Medicine and Magic: Studies in Honor of Markham J. Geller*. Brill, 968 pp. <https://doi.org/10.1163/9789004368088>

Peratt AL (2003) Characteristics for the occurrence of a high-current, Z-pinch aurora as recorded in antiquity. *IEEE Transactions on Plasma Science* 31: 1192–1214. <https://doi.org/10.1109/TPS.2003.820956>

Peratt AL (2004) Orientation of intense Z-pinch instabilities from an intense aurora as recorded in antiquity: Western USA. In: *The 31st IEEE International Conference on Plasma Science, 2004. ICOPS 2004. IEEE Conference Record-Abstracts*, 426. <https://doi.org/10.1109/PLASMA.2004.1340222>

Prete FR, Wells H, Wells PH, Hurd LE (1999) *The praying mantids*. Johns Hopkins University Press, Baltimore, 400 pp.

Sabzi M, Hemati Azandaryani E (2017) Bichoun: newfound rock art at Boroujerd, Lorestan province, western Iran. *Rock Art Research* 34: 1.

Samuels G (2016) 'World's oldest rock drawings' uncovered in Iran by archaeologist. *The Independent*, 12 December. <https://www.independent.co.uk/news/world/middle-east/world-oldest-rock-drawings-archaeologist-iran-khomeyn-mohammed-naserifard-a7470321.html> [Accessed on 14.08.2019]

Sanders T (2014) Jeffers Petroglyphs: A recording of 7000 years of North American history. Minnesota Historical Society, 52 pp. http://www.mnhs.org/sites/default/files/jefferspetroglyphs/learn/archaeology/jeffers-petroglyphs_history.pdf [Accessed on 14.08.2019]

Scott D, Peratt AL (2003) The origin of petroglyphs – Recordings of a catastrophic aurora in human prehistory? In: *The 30th International Conference on Plasma Science, 2003. ICOPS 2003. IEEE Conference Record-Abstracts*, 143.

van der Sluijs MA, Peratt AL (2010) Astronomical petroglyphs; Searching for rock art evidence for an ancient super aurora. *Expedition* [University of Pennsylvania Museum of Archeology and Anthropology] 52: 33–42.

Yamawaki Y (2011) Defence behaviours of the praying mantis *Tenodera aridifolia* in response to looming objects. *Insect Physiology* 57: 1510–1517. <https://doi.org/10.1016/j.jinsphys.2011.08.003>